CLAIMS

1. A rotary engine comprising two components, namely a stator (2), and a rotor (5) torsionally rigid with an output shaft (6), of said stator (2) and said rotor (5), a first component (2) presenting a chamber (3) the surface of which presents circular symmetry about an axis (10a) of said first component (2), and a second component (5) being formed from a body (7) which is disposed in the interior of said chamber (3), and of which the envelope presents circular symmetry about an axis (9) of said second component (5), said envelope being similar to said chamber (3), said axes (9, 10a) being fixed, mutually parallel and non-aligned, one of said components rotating about its axis (9), the first component being a stator (2) and the second component being a rotor (5) having a body (7) torsionally rigid with the output shaft (6), the axis (9) about which the envelope presents circular symmetry being a rotor axis of rotation (9), said axis (9) being eccentric to the stator axis (10a), the body (7) presenting surface recesses (8a, b) acting as guides for seal means (11a, b) which slide along the surface of the chamber (3) as the body (7) rotates, and which together with the surface of the body (7) and of the chamber (3) define sealed chambers (A, B, C, D), said chambers "sliding" relative to the surface of the stator chamber (3) as the output shaft (6) rotates, characterised in that the seal means (11a, b) are split rings.

2. An engine as claimed in claim 1, characterised in that the stator (2) presents a cylindrical cavity (4) for housing the output shaft (6).

3. An engine as claimed in claim 2, characterised in that seal means (12) are present between the cylindrical cavity (4) housing the output shaft (6) and the body (7).

4. An engine as claimed in claim 1, characterised in that the chamber (3) present in the stator (2) is substantially spherical with its centre (10) lying on the

axis (10a), or is ellipsoidal or cylindrical.

5. An engine as claimed in claim 1, characterised in that the body (7) has a substantially spherical, ellipsoidal or cylindrical envelope, and has circular symmetry.

6. An engine as claimed in claim 5, characterised in that the surface recesses (8a, b) are disposed at 90° apart in the direction of the axis of rotation (9).

7. An engine as claimed in claim 1, characterised in that ports (20a, 21a, b, 22, 23a, b, c, d, e, f, 26, 270) are present in the surface of the chamber (3).

8. An engine as claimed in one or more of the preceding claims, characterised in that the seal means (11a, b) comprise rigid rings (110) and elastic sealing parts (111, 112).

9. An engine as claimed in claim 7, characterised in that the seal means (11a, b) present sliding ends of different shape and materials.

10. An engine as claimed in one or more of the preceding claims, characterised in that the seal means (11a, b) urged by elastic means (45), to improve the seal against the surface of the chamber (3).

11. An engine as claimed in one or more of the preceding claims, characterised in that the rigid rings (110) present means (120) for discharging the centrifugal force acting on them.

12. An engine as claimed in one or more of the preceding claims, characterised in that the seal means (11a, b) present further seal means (140) to ensure sealing against the walls of the surface recesses (8a, b).

13. An engine as claimed in one or more of the preceding claims, characterised in that the body (7) presents surface notches (40), recesses (41), protuberances (42), or slots 44 to improve engine efficiency.

14. An engine as claimed in claim 7, characterised in that at least one port

(20a, 21a, b, 22, 23a, b, c, d, e, f, 26, 270) is provided with valve means (27).

15. A method for operating an engine claimed in one or more of the preceding claims, characterised in that:

- with the output shaft (6) rotating, compressed air is injected via a first feed port (21a) while fuel is injected via a second feed port (21b), or an air/fuel mixture is injected via only the port (21a);

- an ignition means, present in the port (22), thus ignites the contents of the chamber A;

- the mixture expands to create within the chamber A a pressure, the resultant of which is a force which when transferred to the body (7) creates a variable drive torque on the output shaft (6);

- the exhaust gas mixture is discharged when the chamber A, dragged by the rotation of the shaft, communicates with an exhaust port (23a) and continues to discharge via subsequent ports (23b, c, d, e, f).